

**DRAFT ADDENDUM TO ECONOMIC ANALYSIS OF CRITICAL HABITAT  
DESIGNATION FOR THE NORTHERN GREAT PLAINS BREEDING POPULATION  
OF THE PIPING PLOVER**

July 2002

## PREFACE

The U.S. Fish and Wildlife Service has added this preface to all economic analyses of critical habitat designations:

"The standard best practice in economic analysis is applying an approach that measures costs, benefits, and other impacts arising from a regulatory action against a baseline scenario of the world without the regulation. Guidelines on economic analysis, developed in accordance with the recommendations set forth in Executive Order 12866 ("Regulatory Planning and Review"), for both the Office of Management and Budget and the Department of the Interior, note the appropriateness of the approach:

*'The baseline is the state of the world that would exist without the proposed action. All costs and benefits that are included in the analysis should be incremental with respect to this baseline.'*

"When viewed in this way the economic impacts of critical habitat designation involve evaluating the 'without critical habitat' baseline versus the 'with critical habitat' scenario. Impacts of a designation equal the difference, or the increment, between these two scenarios. Measured differences between the baseline and the scenario in which critical habitat is designated may include (but are not limited to) changes in land use, environmental quality, property values, or time and effort expended on consultations and other activities by Federal landowners, Federal action agencies, and in some instances, State and local governments and/or private third parties. Incremental changes may be either positive (benefits) or negative (costs).

"In *New Mexico Cattle Growers Ass'n v. U.S.F.W.S.*, 248 F.3d 1277 (10<sup>th</sup> Cir. 2001), however, the 10th Circuit recently held that the baseline approach to economic analysis of critical habitat designations that was used by the Service for the southwestern willow flycatcher designation was 'not in accord with the language or intent of the ESA.' In particular, the court was concerned that the Service had failed to analyze any economic impact that would result from the designation, because it took the position in the economic analysis that there was no economic impact from critical habitat that was incremental to, rather than merely co-extensive with, the economic impact of listing the species. The Service had therefore assigned all of the possible impacts of designation to the listing of the species, without acknowledging any uncertainty in this conclusion or considering such potential impacts as transaction costs, re-initiations, or indirect costs. The court rejected the baseline approach incorporated in that designation, concluding that, by obviating the need to perform any analysis of economic impacts, such an approach rendered the economic analysis requirement meaningless: 'The statutory language is plain in requiring some kind of consideration of economic impact in the CHD phase.'

"In this analysis, the Service addresses the 10th Circuit's concern that we give meaning to the ESA's requirement of considering the economic impacts of designation by acknowledging the

uncertainty of assigning certain post-designation economic impacts (particularly section 7 consultations) as having resulted from either the listing or the designation. The Service believes that for many species the designation of critical habitat has a relatively small economic impact, particularly in areas where consultations have been ongoing with respect to the species. This is because the majority of the consultations and associated project modifications, if any, already consider habitat impacts and as a result, the process is not likely to change due to the designation of critical habitat. Nevertheless, we recognize that the nationwide history of consultations on critical habitat is not broad, and, in any particular case, there may be considerable uncertainty whether an impact is due to the critical habitat designation or the listing alone. We also understand that the public wants to know more about the kinds of costs consultations impose and frequently believe that designation could require additional project modifications.

"Therefore, this analysis incorporates two baselines. One addresses the impacts of critical habitat designation that may be 'attributable co-extensively' to the listing of the species. Because of the potential uncertainty about the benefits and economic costs resulting from critical habitat designations, we believe it is reasonable to estimate the upper bounds of the cost of project modifications based on the benefits and economic costs of project modifications that would be required due to consultation under the jeopardy standard. It is important to note that the inclusion of impacts attributable co-extensively to the listing does not convert the economic analysis into a tool to be considered in the context of a listing decision. As the court reaffirmed in the southwestern willow flycatcher decision, 'the ESA clearly bars economic considerations from having a seat at the table when the listing determination is being made.'

"The other baseline, the lower boundary baseline, will be a more traditional rulemaking baseline. It will attempt to provide the Service's best analysis of which of the effects of future consultations actually result from the regulatory action under review - i.e. the critical habitat designation. These costs will in most cases be the costs of additional consultations, reinitiated consultations, and additional project modifications that would not have been required under the jeopardy standard alone as well as costs resulting from uncertainty and perceptual impacts on markets."

DATED: March 20, 2002

## INTRODUCTION

In September, 2001, the U.S. Fish and Wildlife Service (the Service) published a proposed rule to designate critical habitat for the Northern Great Plains Breeding Population of the Piping Plover (*Charadrius melodus*) under the Endangered Species Act of 1973, as amended (the Act). Because the Act also calls for an economic analysis of the critical habitat designation, the Service released a *Draft Economic Analysis of Critical Habitat Designation for the Northern Great Plains Breeding Population of the Piping Plover* (hereafter *DEA*) for public review and comment in December, 2001.<sup>1</sup>

After considering the public comments on the proposed rule, the Service made revisions to the critical habitat designation for the piping plover (hereafter "plover"). This Addendum addresses the implications of these revisions for the conclusions in the *DEA*, and presents revised estimates of economic impacts where appropriate. Public comments specific to the *DEA* were also considered in preparing this Addendum. In addition, certain topics addressed in the analysis were revisited and additional data were gathered. While the *DEA* presented examples of types and magnitudes of different possible mitigation costs associated with protection of the plover within the proposed critical habitat area, no estimation and aggregation of total future mitigation costs associated with plover protection was made in that document. This Addendum presents an aggregation of estimated future mitigation costs, as well as consultation costs, attributable to implementation of both the listing and critical habitat provisions of section 7 for the plover for future years.

In summary, the revised estimates for the *DEA* presented here result from:

- Changes to the area of the critical habitat designation,
- Public comments on the *DEA* itself,
- Aggregation of estimated mitigation costs associated with plover listing and critical habitat designation, and
- Additional research conducted after publication of the *DEA*.

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<sup>1</sup> Copies of the *Draft Economic Analysis of Critical Habitat Designations for the Northern Great Plains Breeding Population of the Piping Plover* are available by writing to the Field Supervisor, U.S. Fish and Wildlife Service, South Dakota Fish and Wildlife Office, 420 South Garfield Avenue, Suite 400, Pierre, South Dakota 57501.

## IMPLICATIONS AND REVISED ESTIMATES FOR THE DRAFT ECONOMIC ANALYSIS

The following sections describe the implications of changes reflected in the revised critical habitat designation, public comments, and additional research on the analysis presented in the DEA.

### Proposed Critical Habitat

Following a review of comments received by the Service on the Draft Critical Habitat Rule for the plover, several areas proposed for critical habitat designation in the Draft Rule were subsequently dropped from the Final Critical Habitat designation for the species due to non-economic reasons. The exclusion of these areas from the final plover critical habitat impacts the estimation of future consultations and associated costs attributable to critical habitat designation.

A summary tabulation of the areas included in the final critical habitat designation for the piping plover (reflecting the areas excluded since the Draft Designation) are shown in Exhibit A-1.

A comment from the Bureau of Indian Affairs noted an error in the allocation of land ownership along the Missouri River in ND and SD. Specifically, the BIA comment noted that some lands in the two states proposed as designation for plover critical habitat were recognized as owned by the State. In fact, in ND and SD islands and sandbars contiguous to trust lands are covered under the Submerged Lands Act<sup>2</sup> and are therefore held by the United States for the benefit either of a Tribe or of individual Indians. The changes in ownership are reflected in Exhibit A-1. This change in land ownership, however, does not impact the estimates of costs and benefits attributable to designation of critical habitat for the piping plover.

**Montana Reservoirs.** Due to the existence of a memorandum of understanding between the Service, the Bureau of Reclamation, and local irrigators concerning the operation of Nelson Reservoir to protect nesting plovers, the Service has excluded the reservoir from its proposed plover critical habitat area. The re-initiated consultation on plover critical habitat that was included in the DEA impact estimate would therefore not occur under the final, more limited critical habitat designation for the species.

**Lake Francis Case (Unoccupied portion of Unit SD-2).** The final proposed critical habitat designation for the piping plover does not include the Lake Francis Case section of the Missouri River that was included in the Draft Designation. The predicted new consultations arising from the designation and detailed in the DEA have therefore been eliminated in this Addendum.

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<sup>2</sup> 43 U.S.C. §§ 1301-1356

Exhibit A-1. CRITICAL HABITAT UNITS FOR THE PIPING PLOVER IN UNITED STATES GREAT PLAINS STATES SUMMARIZED BY FEDERAL, STATE, COUNTY, PRIVATE, AND OTHER OWNERSHIP.

OWNERSHIP					
Linear River Miles and Acres (percentage within each State)					
	Federal	State	Tribal (reservation boundary)	Private	Total
Minnesota	0	235.2 ac (95.2 ha) (100%)	0	0	235.2 ac (95.2 ha)
Montana	94,021.4 ac (38049.2 ha) (94.1%)	295.1 ac (119.4 ha) (0.3%)	0	5,571.0 ac (2,254.5 ha) (5.6%)	99,887.5 ac (40,423.1 ha)
-Ft Peck Reservoir (Missouri River)	77,370.0 ac (31,310.6 ha)				
-All other habitat	16,651.4 ac (6738.6 ha)				
North Dakota	39,291.2 ac (15,900.9 ha) (47.2%)	3,888.7 ac (1,573.8 ha) (4.7%)	0	40,119.4 ac (16,236.1 ha) (48.1%)	83,299.3 ac (33,710.8 ha)
Missouri River <sup>1,2</sup>	460.2 mi (740.6 km)	307.3 mi (494.6 km)	503.7 mi <sup>2</sup> (810.6 km)	0	767.5 mi (1235.2 km)
Nebraska	0	13.0 mi (20.9 km) (2.8%)	5.0 (8.05 kilometers) (0.01%)	427.0 mi (687.2 km) (97%)	440.0 mi 708.1 km

<sup>1</sup> The Missouri River includes portions of Montana, North Dakota, South Dakota, and Nebraska. Ownership of these sites varies by State. The Federal government owns the reservoir shorelines below the maximum operating pool. In Montana, islands and sandbars are recognized as owned by the State except along the reservation boundaries of the Assiniboine and Sioux Tribes of Fort Peck. The Assiniboine and Sioux Tribes of Fort Peck own land to the mid-channel of the Missouri River adjacent to the Reservation boundary. In North Dakota and South Dakota, islands and sandbars are recognized as owned by the State. However, tribal trust lands in these states under the Submerged Lands Act (43 U.S.C. 1301-1356) are recognized as held by the United States for benefit of the tribe. In Nebraska, islands and sandbars are owned by the adjacent landowner.

<sup>2</sup> Missouri River uses linear miles and opposite banks can be shared by states or tribes. The overall total miles of river (767.5) is correct but percentages were not calculated because of the shared linear mileage.

## ECONOMIC IMPACTS

This analysis presents two estimates of impacts associated with critical habitat designation for the plover: an upper and a lower bound estimate. As noted in the preface, the upper bound estimate includes impacts of critical habitat designation that may be ‘attributable co-extensively’ to the listing of the species. In other words, this upper bound estimate includes all possible impacts related to section 7 consultations involving the species, even those impacts that may have happened in the absence of critical habitat designation for the species. The lower bound estimate of impacts captures costs associated with additional consultations, reinitiated consultations, and additional project modifications that would not have been required under the jeopardy standard alone and would directly result from critical habitat designation. In the following analysis the upper bound estimate of impacts is referred to as **total section 7 impacts**, and the lower bound estimate is referred to as **impacts due solely to critical habitat**.

The discussion and estimation of economic impacts is organized in the following way. Several specific issues raised in comments to the DEA, or through analysis of additional information provided by the Service, are first addressed. This discussion is followed by the presentation of revised estimates of the number of future plover consultations, the administrative costs associated with those consultations, and estimates of anticipated mitigation costs associated with future consultations. The final sections of the Addendum deal with the issue of possible benefits associated with critical habitat designation and an analysis of any anticipated small business impacts associated with the proposed critical habitat rule.

Several comments to the DEA were received which dealt with the number of estimated future consultations solely due to critical habitat designation for the piping plover. Commenters suggested that the DEA underestimates the number of future consultations attributable solely to critical habitat designation. These commenters felt that even in areas with a strong history of consultation on activities potentially impacting the plover, additional future consultations would be attributable to the designation of critical habitat due to a “higher bar” of scrutiny afforded by the designation.

Conversations with Service personnel in North Dakota, South Dakota, and Nebraska, as well as communication with representatives of the U.S. Army Corps of Engineers (COE)<sup>3</sup>, National Park

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<sup>3</sup> Personal Communication, Endangered Species Biologist, U.S. Army Corps of Engineers, Omaha District, Yankton, SD. May 16, 2001.

Service (NPS)<sup>4</sup>, and the Natural Resource Conservation Service (NRCS)<sup>5</sup> support the estimates provided in the DEA of very limited additional future consultations attributable to critical habitat designation. Because the Service already takes habitat concerns into consideration when it consults on activities that might potentially adversely impact the plover, it is unlikely that designation of critical habitat for the plover within areas currently occupied by the species will trigger additional consultation activity. It should also be noted that the plover has been a listed species since 1985. This relatively long tenure as a listed species has ensured that there is wide awareness within the plover habitat of the species, and of concerns related to its habitat. The designation of critical habitat for the species, therefore, will not likely lead to increased consultations due to a new awareness of the need to consult on activities potentially impacting the species. This is consistent with the primary finding of this analysis that the economic impacts associated with designation of critical habitat for the piping plover (above those impacts associated with the listing of the species) will be relatively insignificant.

A number of comments were received containing suggestions that designation of critical habitat for the piping plover would lead to new consultations and associated restrictions on several activities within the proposed critical habitat area. Specific activities which commenters mentioned as being potentially impacted were agricultural activities in Nebraska, Recreational uses of the Niobrara River, and bridge construction and maintenance in Nebraska. These issues and their impact on the final estimates of consultation activity and costs and benefits associated with plover critical habitat designation are addressed below.

**Potential Impacts Associated with Agriculture and Irrigation (NE)** Comments were received from a number of local conservation districts and irrigation districts in Nebraska, expressing concern that designation of critical habitat for the plover in Nebraska would lead to significant restrictions in agricultural use of water in order to protect plover habitat.<sup>6</sup> Specific concerns stated were: 1) technical assistance to farmers from agencies such as NRCS and USDA would be curtailed under critical habitat designation, and 2) Federal farm payments to farmers might constitute a nexus and be restricted under plover critical habitat.

Landowners and farmers in Nebraska have in the past borne significant costs associated with section 7 consultations involving the plover (along with other listed species). A common example of these costs is the conservation fund contributions associated with new water depletions in the

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<sup>4</sup> Personal Communication, Resource Management Specialist, National Park Service, O'Neill, NE. June, 18, 2002.

<sup>5</sup> Personal Communication, NRCS Agent, Bismarck, ND, May 16, 2001.

<sup>6</sup> For example, comment letter, Nebraska Farm Bureau, Lincoln NE. August 10, 2001.



Platte River Basin.<sup>7</sup> Additionally, section 7 consultation on activities such as bank stabilization may result in the imposition of additional costs on project sponsors to ensure protection of the species. These consultations and costs, however, have been consistent within NE in recent years even without critical habitat designation, under the listing protections afforded the plover. The issue raised in the comment letters involved the question of whether critical habitat designation will lead to an increase in these types of consultations with agricultural producers using NRCS or USDA involvement as a Federal nexus to trigger additional section 7 consultations.

Service biologists from Nebraska involved with consultation activity in the State cited no past or anticipated future section 7 consultations for piping plovers on NRCS or USDA activities involving technical assistance to farmers in the state as a Federal nexus. The Service in Nebraska has engaged in one programmatic consultation with NRCS regarding potential impacts associated with the type of projects and assistance they offer. The result of the consultation at that time was the Service concurring with NRCS's conclusion that their projects and technical assistance programs would have no net impacts on endangered species in the state.<sup>8</sup> Regarding agricultural subsidy programs involving USDA, it is USDA's responsibility to initiate section 7 consultations on their actions. At this time, there is no Service record of consultation with USDA's involvement with agricultural subsidies as the Federal nexus. Only USDA would fully understand whether their actions or activities regarding the agricultural subsidy program are consultable actions. Representatives of the Farm Service Agency in Nebraska anticipate no changes in the current policy of not considering either crop subsidy programs<sup>9</sup> or CRP payments<sup>10</sup> as a Federal nexus to trigger consultation on a protected species. The Service has additionally stated that they do not anticipate any such consultations in the future either.<sup>11</sup>

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<sup>7</sup> Biological Opinion on the Federal Energy Regulatory Commission's Preferred Alternative for the Kingsley Dam Project and North Platte/Keystone Dam Project. USFWS Grand Island, NE. July 1997.

<sup>8</sup> Personal communication, Wildlife Biologist, U.S. Fish and Wildlife Service, Nebraska Field Office, Grand Island, Nebraska. June 18, 2002.

<sup>9</sup> Personal communication, State of Nebraska Environmental Coordinator, USDA Farm Service Agency, Nebraska. July 18, 2002.

<sup>10</sup> Personal communication, CRP Specialist, USDA Farm Service Agency, Nebraska. July 17, 2002.

<sup>11</sup> This point was reiterated in testimony by Ralph Morganweck, Regional Director, U.S. Fish and Wildlife Service at a Congressional Field Hearing on the Endangered Species Act and the Platte River Cooperative Agreement and Critical Habitat Proposal for the Piping Plover. House Resources Committee - February 16, 2002 - Grand Island, NE.

**Potential Impacts Associated with Recreation on the Niobrara River (NE)** A comment from the Middle Niobrara Conservation District (MNCD) raised the issue of unaddressed potential impacts associated with water-based and other recreation along the Niobrara River. The commenter noted that two sections of the Niobrara within the proposed critical habitat area are also part of the Federal Wild and Scenic River System. The MNCD asked in its comment that the issue of Wild and Scenic status of the Niobrara and recreational use of the river be addressed explicitly in the Addendum to the Economic Analysis.

While the National Park Service (NPS) has consulted with the Service in the past on projects within the Niobrara National Scenic River, these consultations have not involved recreational activities on the river.<sup>12</sup> Most recreation on the river occurs in the upper scenic section while most endangered species concerns are relative to the lower, lightly used, scenic section. Although the NPS is well aware of species concerns and the status of critical habitat designation for the plover, river managers do not anticipate new consultation activity involving the plover as a result of critical habitat designation for the species.

While there is some development along portions of the Niobrara River proposed as plover critical habitat, the Nebraska counties along this scenic river stretch have recently adopted consistent zoning regulations requiring a 200 foot setback from the river for new development.<sup>13</sup> This setback requirement removes future construction activity along this river reach from the critical habitat area. Based on current land use restrictions and the consultation history along the Niobrara, it is not anticipated that critical habitat designation for the plover will impact the number or complexity of future consultations involving the NPS as a Federal nexus along the National Scenic River stretches of the Niobrara.

**Potential Impacts Associated with Highway Bridge Construction** The Nebraska Department of Roads (NDR) submitted a comment letter questioning the estimates of future section 7 consultations associated with road and bridge projects within the State in the future. The comment stated that in the past the NDR had used careful planning for their projects that were within plover habitat in order to "...avoid [the habitat] if possible, minimize its impact to the extent practicable, or mitigate for any impacts through consultation with the U.S. Fish and Wildlife Service." The NDR comment stated that it was rare that projects necessitated section 7 consultation with the Service regarding the plover. The comment went on to state that the NDR believed under critical habitat designation for the plover they would need to engage in section 7

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<sup>12</sup> Personal Communication, Resource Management Specialist, National Park Service, O'Neill, NE. June, 18, 2002. The activities consulted on in the past have included both bridge work within the scenic river section, and bank stabilization in the area.

<sup>13</sup> Personal Communication, Resource Management Specialist, National Park Service, O'Neill, NE. June, 18, 2002.

consultation on all NDR projects crossing critical habitat. The NDR estimated that a Federal nexus might occur with the Federal Highway Administration on “more than 30 bridge crossing projects within the critical habitat during the next ten years.”<sup>14</sup> The NDR comment stated that this estimate of 30 road and bridge consultations over the next decade appeared to be inconsistent with the projections in the DEA for future section 7 consultations involving the plover.

As is discussed more thoroughly below, upon additional review of their consultation files, Service personnel in NE found that the estimates of formal and informal consultations provided for use in the DEA understated the total consultation activity involving the plover in past years. The revised information on past consultations supports the NDR suggestion that they could be involved in 30 road and bridge consultations over the next ten years. Recent years’ consultation records show that the Service in NE consults on between four and five road or bridge activities per year.<sup>15</sup> The Service believes it presently consults on all bridge construction or repair projects within the proposed plover critical habitat. These consultations largely remain at the informal level, perhaps due (as the NDR comment states) to efforts on the part of the NDR to avoid the habitat if possible and minimize species impacts to the extent practicable. This past record suggests that over the next decade a total of 40 to 50 NDR consultations could occur involving the plover. This new estimate is larger than that provided by the NDR comment letter, and is used in the cost calculations below.

**Minnesota (Lake of the Woods) Proposed Critical Habitat Unit** The DEA estimated that two formal consultations would be attributable to designation of critical habitat for the piping plover within the Lake of the Woods unit over the next decade. Comments by Minnesota representatives of the Service took exception with the assumption that new plover consultations within the unit would be attributable solely to critical habitat designation. Specifically, the comment stated:

“We anticipate that the continued use of these areas by piping plovers for nesting [over the next decade] would be the basis for any formal consultations that may arise.”<sup>16</sup>

This Addendum, therefore, while retaining the DEA estimate of two formal consultations relating to the plover over the next decade, includes these consultations and any costs associated with them in the upper bound estimate of impacts, rather than the lower bound estimate of impacts

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<sup>14</sup> Nebraska Department of Roads Comments on the Economic Analysis Of Critical Habitat Designation for the Piping Plover, May 3, 2002.

<sup>15</sup> Personal communication, Wildlife Biologist, U.S. Fish and Wildlife Service, Nebraska Field Office, Grand Island, Nebraska. June 18, 2002.

<sup>16</sup> Comment memorandum. Dan Stinnett, Field Supervisor, Twin Cities ESFO, Bloomington MN. February 21, 2002.

attributable solely to designation of critical habitat for the species.

**Nebraska Rivers** Since the publication of the DEA, the Service in Nebraska has completed a more thorough review of the history of informal consultations in Nebraska involving the plover. This review has resulted in a significant revision in the anticipated number of future annual informal consultations within the proposed critical habitat areas involving the species. As in ND and SD, a significant number of informal consultations involving the plover in Nebraska consist of either a phone call and follow-up letter or an exchange of letters with the finding of “no impact” for listed species. A review of all consultations involving the plover in Nebraska, including these simple communication exchanges showed in 2001 there were 935 informal consultations.<sup>17</sup>

Exhibit A-2 reflects this change in information regarding Nebraska consultation activity involving the plover. Based on this new information it is estimated that 950 informal consultations involving the plover will occur annually over the next ten years within the Nebraska critical habitat units.

Based on formal consultation activity in recent years, It is estimated in this Addendum that, in Nebraska, an average of 15 formal consultations per year will involve the plover and its habitat in the future. This number is consistent with consultation activity in recent years. The increase of ten formal consultations per year over estimates presented for the Nebraska habitat in the DEA is due to the failure to classify an estimated ten minor water depletion consultations per year in the state as formal consultations. The DEA classified these as informal consultations.

### **Summary of Estimates of the Number of Total Section 7 and Critical Habitat Related Consultations**

This report estimates impacts of listing and critical habitat designation on activities that are “reasonably foreseeable,” including, but not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Accordingly, the analysis bases estimates on activities that are likely to occur within a ten-year time horizon.

Exhibit A-2 shows the estimated annual levels of both total section 7-related consultations and consultations due solely to critical habitat designation that are expected over the next ten years. These estimates have been revised from the DEA to reflect changes in areas designated as plover critical habitat and other information presented during the comment periods.

A ten-year time period for projecting the impacts of designation of critical habitat for the plover

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<sup>17</sup> Personal communication, Wildlife Biologist, U.S. Fish and Wildlife Service, Nebraska Field Office, Grand Island, Nebraska. June 18, 2002.

was chosen based on the pattern of population growth in the counties containing plover habitat over the past decade. While there is diversity in economic activity and growth trends across the areas proposed as critical habitat for the plover, the area shows a general pattern of relatively stable economic activity. Many counties in rural portions of Montana, North Dakota, South Dakota, and Nebraska saw decreases in population between 1990 and 1999.<sup>18</sup>

For example, the Lake of the Woods critical habitat is located in a sparsely populated area of northern Minnesota. Due to the land ownership, setting, and rural nature of this unit, it is unlikely that significant economic development pressures will be placed on this plover habitat in the foreseeable future. In Montana, the counties containing proposed critical habitat for the plover have all seen a steady decline in population over the last decade. Additionally, only two of the 21 North Dakota counties containing plover critical habitat have seen an increase in population between 1990 and 1999. This trend reflects both the rural and nature of these counties as well as the general decline in small agricultural production throughout this portion of the western U.S. In South Dakota, the population trends in counties containing proposed critical habitat was more mixed, with a significant number of counties losing population while others (such as Stanley and Hughes Counties surrounding the state capital Pierre) gained. As in South Dakota, Nebraska counties containing proposed critical habitat for the plover showed a mixed pattern of population growth between 1990 and 1999. Within the Nebraska counties containing designated plover critical habitat, population changes ranged from a decrease of 16.3 percent (Rock County) to an increase of 19.4 percent (Sarpy County, near Omaha).

Overall, consultation rates are expected to remain relatively unchanged for ten years into the future as most of the areas proposed for designation as critical habitat for the plover have not evidenced significant population or economic growth in recent years. Estimates of future consultations generated as a result of the designation are based on the extent to which the Service has been consulting on activities potentially affecting the plover in recent years as well as any information suggesting that consultation activity will increase following critical habitat designation.

Considering past consultation activity as well as likely future activities and trends associated with the proposed critical habitat areas for the piping plover, it is estimated that, on average, a total of 23 formal consultations and 1,278 informal consultations will occur per year within critical habitat for the piping plover. It is further estimated that these consultations will be almost entirely associated with the protections afforded the plover under the listing provisions of the Act, rather than critical habitat designation for the species. It is estimated that only one formal consultation (re-initiation of the system-wide Missouri River consultation) will be due solely to critical habitat designation for the piping plover.

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<sup>18</sup> U.S. Department of the Census: <http://www.census.gov/population/estimates/country/>



**Exhibit A-2. Annual Estimated Future Consultations Involving the Northern Great Plains Breeding Population of the Piping Plover.**

<b>Habitat / State</b>	<b>Estimated Annual Number of Future Section 7 Plover Consultations Affecting Critical Habitat</b>	<b>Annual Number of New or Reinitiated Consultations Due Solely to Plover Critical Habitat</b>	<b>Expected increase in complexity of consultations due to critical habitat</b>
Minnesota (Lake of the Woods)	2 formal <sup>1</sup>	0	none
Bowdoin & C.M. Russell NWR & Missouri River	3 informal	0	unlikely
North Dakota and Montana Alkali Lakes	1 formal 23 informal	0	minimal
Missouri River- North Dakota	4 formal 211 informal	0	minimal
Missouri River- South Dakota	1 formal 91 informal	0	minimal
Nebraska Rivers	15 formal 950 informal	0	minimal
Total Estimate (per year)	23 formal <sup>2</sup> 1278 informal	1 formal <sup>2</sup>	--
<sup>1</sup> Minnesota Service personnel estimate two total formal consultations involving the plover over the entire ten year future period. <sup>2</sup> This estimate includes the one-time re-initiation of the system-wide Missouri River formal consultation with the COE ( This annual estimate likely overstates annual impacts, but was used to avoid fractional estimates of consultations)			

**Summary of Estimates of Administrative Costs Associated with Future Piping Plover Consultations**

The estimates of future plover-related consultations presented in Exhibit A-2 represent one step towards estimating costs associated with the listing of the plover and subsequently with designation of critical habitat for the species. While consultations represent administrative actions in response to specific planned activities, they also represent real-world costs to those parties involved in the consultations.

Both the type and number of activities that could potentially trigger consultations involving the piping plover is large. A thorough accounting of each expected consultation and associated

estimated costs would be extremely speculative and would convey the impression of far more precision than is possible given the scope, uncertainty, and future timing of the consultation and cost estimates. Therefore, the following discussion categorizes the predicted future consultations according to complexity, and assigns cost estimates based on that level of complexity. Three specific future levels of consultation complexity are addressed:

Costs associated with minor, informal consultations,  
Costs associated with larger, formal consultations, and  
Costs associated with very large scale system-wide consultations.

Estimates of the cost of consultations were developed from a review and analysis of historical section 7 files from a number of Service field offices around the country. These files addressed consultations conducted for both listings and critical habitat designations. Cost figures were based on an average level of effort for consultations of similar expected complexity, multiplied by the appropriate labor rates for staff from the Service and other Federal agencies. These estimates take into consideration the level of effort of the Service, the Action agency, and the applicant during formal consultations, as well as the varying degrees of complexity of consultations. Costs associated with these efforts are based on estimates of administrative effort in issuing a biological opinion, such as time spent in meetings, preparing letters, and making phone calls. The per-consultation cost estimates relied on are mid-range estimates and the full range of unit cost estimates could be one-half to twice of this value.

**Informal Consultation Administrative Cost Estimates** Exhibit A-2 details an estimated average of 1,278 informal consultations per year involving the piping plover over the next ten years. All of these estimated informal consultations are expected to be due to protections afforded the species under the listing provisions of the Act. Conversations with Service personnel responsible for conducting these consultations indicate that the large majority of these informal consultations involve only the receipt and return of a contact letter detailing the proposed activity. These letters are most often returned with a “no significant impact” determination and the activity goes forward as planned. While relatively uninvolved, these simple informal consultations are not without cost.

As discussed in the DEA, a relatively small number of the informal consultations involving the plover over the next decade will be somewhat more complex. An example would be an application for a permit for bank stabilization along the Missouri River. While some bank stabilization consultations are on small-scale proposals by landowners, others involve large development projects, and their associated consultations involve significant regulatory interaction between the Service, the COE, and the private applicant.<sup>19</sup> Considering the very large share of informal consultations involving a simple exchange of letters, it is estimated that each consultation

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<sup>19</sup> US Army Corps of Engineers, Omaha District. “Department of the Army Decision Document: WW Ranch Bank Stabilization Proposal.” March 2001.



costs a total of \$1,530 to the participants.<sup>20</sup> Based on the number of expected plover consultations (Exhibit A-2) it is estimated that the cost associated with informal consultations involving the piping plover will be approximately \$1,956,600 per year over the next ten years. All of this upper bound estimate is expected to be due to the listing protections for the species. These estimates also likely provide a conservative estimate (more likely to overestimate costs than to underestimate them) of the informal consultation administrative costs associated with the plover due to the fact that a high percentage (over 90 percent) of these consultations are expected to include more than one species. Allocation of a share of these costs to other species involved in the consultations could lead to estimates of plover-related costs that are substantially lower.

**Formal Consultation Administrative Cost Estimates** Exhibit A-2 shows an estimate of 22 formal consultations per year over the next decade due to the existing listed status of the plover. Assuming a relatively high level of complexity associated with these consultations, it is estimated that each formal consultation will cost approximately \$16,300.<sup>21</sup> Given the number of estimated future consultations per year, it is estimated that future annual formal consultation costs will be approximately \$358,600 for listing-related consultations. As in the case of informal consultations (discussed above), these estimates likely reflect a high, upper-bound for these formal consultation costs due to the fact that a high percentage of these consultations are expected to include more than one species. Additionally, ten of these formal consultations are expected to be minor water depletion consultations in Nebraska which, due to a standardized treatment, should have significantly lower total costs than for a typical formal consultation.

**Missouri River System-wide Consultation Administrative Cost Estimates** The Service completed a system-wide consultation with the COE in 2000 on the operation of the Missouri River dams and reservoirs. This far-ranging consultation considered operations in much of the Missouri River habitat for the piping plover. While the impact of dam operations on reservoir levels and plover breeding habitat was explicitly considered in this consultation, it is possible that, following critical habitat designation for the plover, the consultation would necessarily be reinitiated to ensure all aspects of piping plover critical habitat concerns were addressed. Because of the comprehensive nature of this recent consultation, it is unlikely that re-initiation would approach the complexity of the original consultation. It is estimated, however, that due to the scope of the consultation, re-initiation resulting from critical habitat designation for the plover would cost twice the average formal consultation costs cited above, or \$32,600.

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<sup>20</sup> The participants are the Service, the Federal agency involved, and the private applicant, if applicable. Calculation is based on the assumption that 50 percent of the applicants will be a Federal agency and 50 percent will be private applicants. This amount is the estimated cost associated with a simple consultation with no associated biological survey work.

<sup>21</sup> Based on \$7,500 for a biological assessment, and \$8,800 for other consultation costs.

<b>Exhibit A-3. Estimated Annual Future Consultation Administrative Costs Involving the Northern Great Plains Breeding Population of the Piping Plover.</b>		
<b>Consultation/cost category</b>	<b>Annual Cost Estimates</b>	
	<b>All Section 7 Consultations Affecting Critical Habitat Areas</b>	<b>Consultations Due Solely to Critical Habitat Designation</b>
Consultation costs		
Informal consultations	\$1,956,600	\$0
Formal consultations	\$358,600	\$0
System-wide COE consultation	\$32,600	\$32,600
Total Estimate (per year) (not including mitigation costs)	\$2,347,800	\$32,600
Estimates of average consultation costs are based on Office of Personnel Management, Federal Government Rate Schedules as well as analysis of rate information by Industrial Economics, Incorporated, Cambridge, MA.		

Overall, this analysis found that over the next ten years total annual consultation costs associated with activities potentially affecting the piping plover will be \$2,347,800.<sup>22</sup> Of this total, it is estimated that a maximum of approximately \$32,600 per year in consultation costs will be due to designation of critical habitat for the piping plover. It is this amount (\$32,600) that would be avoided were there no critical habitat designation for the species.

The estimated number of consultations and associated costs presented here are suggestive. The actual number of consultations, which may be lower or higher than these estimates, depends on future economic activity within the areas of critical habitat, as well as on individual decisions made by Federal, tribal, state, municipal, and private landowners. In addition, the analytic approach used to derive the estimated number of consultations cannot account for unknown or unforeseen activities and projects. Therefore, the estimates presented here represent reasonable approximations and not firm predictions.

### **Future Mitigation Costs Related to Piping Plover Consultations**

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<sup>22</sup> Total consultation costs are for all parties involved in the consultations. Of the \$2,347,800 total, approximately 34.5 percent (\$810,000) would be costs to the Service, 40.0 percent (\$939,000) would be costs to the Action agencies, and 25.5 percent (\$599,000) would be costs to private applicants.

The proposed critical habitat designation for the piping plover is an extremely large designation in terms of both spatial extent (the proposed area traverses large sections of four states) and diversity of activities along the proposed critical habitat. Because of the complexity of the designation, the DEA discussion of costs associated with mitigation actions arising from section 7 consultations involving the plover was limited to explanations of the probable types of and typical costs associated with mitigation actions. No attempt was made in the DEA to develop aggregate estimates of future listing and critical habitat-related mitigation costs. A large number of commenters, however, felt that a complete economic analysis of the plover critical habitat designation should include aggregate estimates of mitigation as well as consultation-related costs.

The following analysis of aggregate mitigation costs utilizes additional information gathered from Service biologists, records of past consultations, and information submitted by commenters to the DEA. The estimates are presented for each State/habitat type.

The DEA estimated both the number of future consultations attributable to the listing of the plover and those that could be solely attributable to the designation of critical habitat for the species. The combination of removal in the Final Critical Habitat Rule of areas proposed for critical habitat designation in the Draft Critical Habitat Rule, along with new information from the Service on likely future consultation activity within the Lake of the Woods Unit in Minnesota, resulted in the elimination of all predicted new consultation activity attributable solely to critical habitat designation for the plover. As detailed in the DEA, an examination of past consultation activity within the proposed plover critical habitat areas indicate that, as in recent past years, there will continue to be a significant number of consultations involving the piping plover in future years within the proposed critical habitat areas. It is, however, the finding of this analysis that these consultations, along with any suggested project modifications or mitigation actions, would have also occurred in the absence of critical habitat designation for the species under the section 7 listing protections. The exhibits and cost estimates in the remainder of this Addendum reflect the upper bound estimate of total section 7-related costs (consultation and mitigation) associated with both the listing and critical habitat designation for the species. The one exception is the estimated \$32,600 consultation cost associated with re-initiation of the Missouri River system-wide formal consultation.

**Minnesota (Lake of the Woods)** The DEA estimated that two section 7 consultations involving the plover would likely be required over the next decade within the Lake of the Woods unit (the probable consulting agencies would be the COE and The Lake of the Woods Control Board). These consultations would likely address the issue of erosion of beach nesting habitat for the plover within the Lake of the Woods Unit. The probable Federal nexuses for these consultations would be the Corps of Engineer's maintenance of jetties and boat channels, and the Lake of the Woods Control Board's management of lake levels. At this time it is either unknown or unclear whether the COE or Control Board's actions are responsible, or even contributory, to the habitat erosion seen in recent years. Representatives of the Service in Minnesota feel that it is necessary to study the issue of erosion of beach habitat in the area to a much greater extent before

speculating on what types of mitigation actions might result from possible future section 7 consultations with the COE and Lake of the Woods Control Board.<sup>23</sup> Due to the extremely speculative nature any future mitigation actions within this unit, no estimate of project modification or mitigation costs are presented for the Lake of the Woods plover habitat.

**Montana– Bowdoin & C.M. Russell NWR & Missouri River** As noted in the DEA, Bowdoin and C.M. Russell NWRs are both operated by the Service, and are not predicted to have future consultations on activities requiring mitigation activities. The estimated three informal consultations per year involving bank stabilization along the Missouri River below Ft. Peck Dam may require some degree of mitigation in order to avoid disturbing nesting sites for plovers. Conversations with Service personnel in Montana indicate that past mitigation has been limited to scheduling bank stabilization projects around nesting periods. Any cost associated with such scheduling restrictions is unknown, and is likely variable due to differing sizes and locations of bank stabilization projects. Table A-4 estimates a cost of \$5,000 per case for these delays.<sup>24</sup> These mitigation costs are likely to overstate true costs faced by applicants because in many cases there may be no delay and thus the costs are not realized. These costs are presented, however, in order not to downwardly bias total estimated mitigation costs for the species.

<b>Exhibit A-4. Montana Missouri River and National Wildlife Refuges: Estimated annual mitigation costs resulting from piping plover consultations</b>					
<b>Type of Consultation</b>	<b>Number</b>	<b>Activities / mitigation</b>	<b>Number requiring mitigation</b>	<b>Total Section 7 Mitigation Costs</b>	
				<b>Low Estimate</b>	<b>High Estimate</b>
Informal Consultations	3	Bank Stabilization / Construction delays	3	\$15,000	\$15,000
Note: Total mitigation costs represent the per-event cost of \$5,000 multiplied by the number of cases requiring mitigation (3).					

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<sup>23</sup> Personal Communication, Staff Biologist, U.S. Fish and Wildlife Service, Twin Cities Field Office. June 11, 2002.

<sup>24</sup> An estimate of delay costs associated with road construction activities cited in *Final Addendum to Economic Analysis of Critical Habitat Designation for the Carolina Heelsplitter* (Industrial Economics, Inc. 2002), was \$5,000 for road projects and \$10,000 for bridge projects. These costs were due to the inefficiencies of re-mobilization of workers and machinery. These estimates are used in the current analysis as indicative of the general magnitude of possible delay costs.

**Montana and North Dakota Alkali Lake Habitat** The DEA presented estimates of one formal and 21 informal consultations on alkali lake plover habitat in North Dakota and two additional informal consultations within this habitat in Montana. Both Montana and North Dakota Service personnel indicate that mitigation requirements are extremely rare in these habitat types. In North Dakota it is estimated that less than five percent of informal consultations involving the plover result in recommended mitigation actions. Types of possible mitigation cited by ND Service personnel include minor erosion control from road construction and buffer zones around nesting sites for pesticide application. Modification costs associated with pesticide buffer zones are assumed to be negligible. Due to the uncertainty as to what type of activities might be addressed in the estimated 21 various informal consultations, a standard cost of \$5,000 to \$10,000 per modification effort is estimated.

The Service in Montana has reviewed a handful of proposals to drill for oil or gas within potential plover habitat in the alkali wetlands portion of the Montana critical habitat designation. To date, no mitigation or conservation actions have been recommended by the Service related to these actions. Were a specific conflict between the proposed action and the plover or its critical habitat to occur, possible mitigation might involve modifications in locations of access roads or drilling platforms. Done at the review stage of the project, these minor changes would likely represent very small marginal changes in overall drilling and development costs for the wells. As noted, to date no such mitigation measures have been recommended by the Service associated with these activities.<sup>25</sup> Lacking examples of such mitigation costs in the Montana alkali lake habitat in the past it is assumed that such a realignment would cost between \$0 and \$10,000. These estimates are used so as not to arbitrarily dismiss future costs due to a lack of examples of similar past costs. Exhibit A-5 shows the estimated annual mitigation costs associated plover protection within the alkali lake habitat.

<b>Exhibit A-5. North Dakota and Montana Alkali Lake Habitat: Estimated annual mitigation costs resulting from piping plover consultations</b>					
<b>Type of Consultation</b>	<b>Number</b>	<b>Activities / mitigation</b>	<b>Number requiring mitigation</b>	<b>Total Section 7 Mitigation Costs</b>	
				<b>Low Estimate</b>	<b>High Estimate</b>
Formal Consultations	1	Pesticide spraying / Buffer zones	1	not estimated	not estimated
Informal Consultations-ND	21	Various	1 <sup>1</sup>	\$5,000	\$10,000
Informal Consultations-MT	2	Oil & Gas Drilling / relocation	1 <sup>2</sup>	\$0	\$10,000

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<sup>25</sup> Personal Communication, Wildlife Biologist, USFWS, Billings Field Office. October 3, 2001.

<sup>1</sup> ND Service personnel report less than 5% of all informal consultations within this habitat require any mitigation.

<sup>2</sup> Although this mitigation has not occurred in the past, an estimate of 1 mitigation action per year is presented with an arbitrary cost range of 0 to \$10,000 for minor realignment of facilities.

**North Dakota Missouri River Habitat** The DEA presented an estimate of 211 informal and four formal section 7 consultations within North Dakota Missouri River Habitat per year involving the piping plover over the next decade. As in the case of consultations involving the plover in alkali lake habitat, ND Service personnel estimate that less than 5 percent of these consultations involve any mitigation actions.<sup>26</sup> Exhibit A-6 shows the predominant activities consulted on and associated mitigation actions and costs. In addition to estimating the percent of consultations within the ND Missouri River habitat requiring mitigation or modification, ND Service personnel estimated from past consultation records the percent of annual informal consultations associated with the predominant activities on the river. It was estimated that of all informal consultations, 30 percent involved boat ramps or docks, 15 percent bank stabilization projects, 30 percent water intakes from the river, five percent marina and residential development, and 20 percent dredging. It was further noted that dredging activities are often done in conjunction with the other activities listed.<sup>27</sup> Exhibit A-6 details the number of and estimated costs associated with these consultations.

Costs detailed in Exhibit A-6 are from estimates and examples provided both by Service representatives and by those agencies or individuals completing the mitigation actions. Costs of informational signs (the most often used mitigation action associated with boat ramps and other recreational facilities) are estimated at \$1,000 installed. Water intakes rarely have any associated modifications beyond occasional very minor placement modifications or seasonal delays to avoid plover breeding season. The cost associated with these modifications is assumed to be a maximum of \$5,000 per event. An upper bound estimate of \$100,000 mitigation costs associated with bank stabilization projects is taken from estimates of one applicant for a relatively large-scale stabilization project.<sup>28</sup> A low estimate of mitigation costs associated with bank stabilization is estimated at one-half the high estimate, or \$50,000. The estimates of mitigation costs for bank stabilization are also used for marina and residential developments, as many of the same habitat impacts might be addressed in these projects as in the bank stabilization projects. Dredging activities within the Missouri River habitat do not, as a rule, have associated mitigation actions

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<sup>26</sup> Personal Communication, Staff Biologist, U.S. Fish and Wildlife Service, North Dakota Field Office, Bismark, ND. June 7, 2002.

<sup>27</sup> Email Correspondence, Staff Biologist, U.S. Fish and Wildlife Service, North Dakota Field Office, Bismark, ND. June 7, 2002.

<sup>28</sup> US Army Corps of Engineers, Omaha District. "Department of the Army Decision Document: WW Ranch Bank Stabilization Proposal." March 2001

triggered by concerns for listed species within the ND habitat. Dredged material is deposited above the shoreline habitat area and thus impacts on the plover are not an issue.<sup>29</sup>

Of the estimated four formal and 211 informal consultations per year in North Dakota Missouri River Habitat involving the piping plover it is estimated that one formal and nine informal consultations will have some mitigation or project modification costs associated with them. Overall, it is estimated that the annual mitigation and project modification costs associated with consultations involving the piping plover in North Dakota Missouri River habitat will range between \$168,000 and \$318,000.

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<sup>29</sup> Personal communication, Biologist, USFWS, Bismark, ND Field Office. June 7, 2002.

**Exhibit A-6. North Dakota Missouri River Habitat: Estimated annual mitigation costs resulting from piping plover consultations**

Type of Consultation	Number	Activities / mitigation	Number requiring mitigation <sup>1</sup>	Total Section 7 Mitigation Costs	
				Low Estimate	High Estimate
Formal Consultations	4	Bank Stabilization / Habitat creation	1	\$50,000	\$100,000
Informal Consultations	63	Boat ramps and docks / Plover signs	3 <sup>2</sup>	\$3,000	\$3,000
	63	Water intakes / realignment or seasonal delays	3	\$15,000	\$15,000
	32	Bank Stabilization / habitat creation	1	\$50,000	\$100,000
	11	Marinas & Residential Development / habitat creation	1	\$50,000	\$100,000
	42	Dredging / NA	0	\$0	\$0
<b>Total Estimated Annual Mitigation Costs</b>			<b>9</b>	<b>\$168,000</b>	<b>\$318,000</b>

<sup>1</sup> ND Service personnel report less than 5 percent of all informal consultations within this habitat require any mitigation.

<sup>2</sup> The predominant mitigation for recreation facilities such as boat ramps and docks is the placement of explanatory signs alerting recreationists to be aware of plover habitat. These signs cost \$500 apiece (plus labor) to erect.<sup>30</sup> It is estimated that the total mitigation cost per sign is \$1,000.

**South Dakota Missouri River Habitat** The consultation activity along the South Dakota section of the Missouri River plover habitat shares many of the same activities and concerns found along the North Dakota Missouri River sections. Exhibit A-7 shows the estimated distribution of annual consultations among differing activities and the estimated costs associated with these activities. A review of past consultation activity involving the plover in South Dakota by Service personnel revealed the following distribution of informal consultations across activities: new or upgraded boat ramps—10 percent, floating boat docks—20 percent, minor bank stabilization projects—25 percent, water intake projects—30 percent, dredging—10 percent, marina and

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<sup>30</sup> Email Correspondence, Staff Biologist, U.S. Fish and Wildlife Service, South Dakota Field Office, Pierre, SD. April 12, 2002.



restaurant projects—4 percent, bridge crossings—1 percent.<sup>31</sup> As is the case within the North Dakota Missouri River habitat, only a small portion of the informal consultations in South Dakota involving the plover have any project modification or mitigation actions associated with them. Exhibit A-7 shows both the total number of consultations predicted annually involving the plover, and the number of these consultations predicted to require mitigation or modification.

Three primary types of mitigation and modification actions are incorporated within the Exhibit A-7 calculations. Habitat creation as a mitigation action is utilized for major bank stabilization projects and for dredging activities. As in the case in North Dakota, a high estimate of \$100,000 per event and a low estimate of 50 percent of this amount (\$50,000) was used as a cost estimate for compensatory habitat creation.<sup>32</sup> Informational signs are the primary mitigation action for new boat ramp construction<sup>33</sup>, and seasonal delays to avoid breeding season are the primary mitigation actions for installation of water intakes, minor bank stabilization projects, marina and residential development, and bridge maintenance and construction. No records were found of mitigation actions associated with floating boat docks.

Of the estimated one formal and 91 informal consultations per year in South Dakota Missouri River habitat involving the plover, it is estimated that one formal and 22 informal consultations will have some mitigation or project modification costs associated with them. Overall, it is estimated that the annual mitigation and project modification costs associated with consultations involving the piping plover in South Dakota Missouri River habitat will range between \$198,000 and \$298,000.

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<sup>31</sup> Personal communication, Staff Biologist, U.S. Fish and Wildlife Service, South Dakota Field Office, Pierre, SD. June 11, 2002.

<sup>32</sup> From the previously cited W.W. Ranch consultation in North Dakota.

<sup>33</sup> A cost of \$1,000 per sign was used based on a reported \$500 sign cost and an equal allowance for installation costs.

<b>Exhibit A-7. South Dakota Missouri River Habitat: Estimated annual mitigation costs resulting from piping plover consultations</b>					
Type of Consulta tion	Number	Activities / mitigation	Number requiring mitigation	Total Section 7 Mitigation Costs	
				Low Estimate	High Estimate
Formal Consultations	1	Major Bank Stabilization / Habitat creation	1	\$50,000	\$100,000
Informal Consultations	9	Boat ramps / Plover signs	3	\$3,000	\$3,000
	27	Water intakes / Seasonal Delays	2	\$10,000	\$10,000
	23	Bank Stabilization / Seasonal delays	11	\$55,000	\$55,000
	4	Marinas & Residential Development / Seasonal delays	4	\$20,000	\$20,000
	9	Dredging / Sandbar creation	1	\$50,000	\$100,000
	18	Floating Boat Docks	0	\$0	\$0
	1	Bridges and crossings / Seasonal delays	1	\$10,000	\$10,000
<b>Total Estimated Annual Mitigation Costs</b>			<b>23</b>	<b>\$198,000</b>	<b>\$298,000</b>

**Nebraska River Habitat** A large number of comments on the DEA were received from individuals and organizations within Nebraska regarding the designation of critical habitat for the plover along stretches of the Platte, Loup, and Niobrara Rivers in the state. Many of these letters contained specific information and suggestions on possible costs associated with mitigation actions involving consultations on plover critical habitat.

The Nebraska Habitat Conservation Coalition (NHCC), an organization comprised of a large number of Nebraska irrigation, conservation, public power and natural resource districts (as well as other organizations), submitted extensive comments on the DEA. Contained within these comments was an extensive detailing of past conservation measures and costs incurred to protect the plover and its habitat in Nebraska. The commenters listed a significant number of past and ongoing efforts by both private conservation organizations and public organizations to protect existing habitat and create new habitat for the plover (as well as other listed species).

The number of past plover-related conservation actions and section 7 consultations detailed in the NHCC comment highlights the high-profile position which the plover along with other listed

species in Nebraska (notably the least tern and the whooping crane) have occupied in recent years. The extent to which the plover and its habitat are considered in actions along the Nebraska rivers involving shorelines, sandbars and water flow underscores the conclusion of the DEA that activities likely to impact the plover and its habitat have been actively consulted on in the past by the Service. The level of scrutiny given these types of projects within plover habitat is not estimated to change substantially following critical habitat designation for the species.

The NHCC comment letter also detailed a number of examples of costs (both consultation-related and mitigation) associated with past consultations involving the plover in Nebraska. These examples of costs are incorporated in the estimation of total mitigation costs (Exhibit A-8). Examples of these costs are:<sup>34</sup>

Costs associated with conservation actions under Federal Energy Regulatory Commission (FERC) licenses.

- The Central Nebraska Public Power and Irrigation District (CNPPID) spends \$5,000 to \$20,000 per year to maintain and enhance plover and tern nesting sites along the North and South Platte Rivers.
- The Nebraska Public Power District (NPPD) provides for up to \$53,000 (1997 dollars) per year for management and enhancement of nesting sites for plovers and terns in accordance with its FERC license.
- The re-licensing of four hydroelectric facilities by the NPPD and CNPPID necessitated an extended section 7 consultation process in which the piping plover was one of the species of concern. The two power districts estimate that overall, \$15 million of the total cost of re-licensing the facilities was attributable to section 7 consultation activity. These costs included substantial commitments of personnel throughout the process as well as the purchase of land to develop species habitat.

Costs associated with levee construction projects.

- An informal consultation on a proposed levee construction and improvement project on the lower Platte River resulted in estimated consultation-related costs of \$100,000 and project modification costs of \$2.3 million (16 percent of the \$14.5 million total cost of the project).

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<sup>34</sup> May 17, 2002 comment letter submitted to the Service by the Budd-Falen Law Offices on behalf of the Nebraska Habitat Conservation Coalition.

Costs associated with construction of a municipal well field along the Platte River.

- A requested mitigation action to include a separate recharge well not hydrologically connected to the Platte River within the scope of the municipal project would have increased the \$1.8 million project by an estimated \$81,000 and added an additional \$1,000 per year to the well system operating costs. (The project was canceled for lack of town support.)

As noted above, consultations involving piping plover habitat in Nebraska were underestimated in the DEA. A complete review of informal consultation activity for 2001 showed 935 consultations in which the plover was a species of concern. It is estimated that an annual average of 950 informal consultations in Nebraska will occur over the next ten years involving the plover or its habitat. Of this number, a large majority are small project consultations involving only an exchange of letters, or a phone call with a letter response from the Service. This relatively large number of simple consultations includes informal consultations on activities such as potential water depletions that are determined to not be of concern, pipeline projects, or small bank stabilization projects. In the case of potential water depletions, the standard procedure for these informal consultations involves determination of whether the proposed project will result in river water depletion. If it is determined that it will, the consultation becomes formal. If it is not a true depletion of river water,<sup>35</sup> the informal consultation is ended with no further action or requirements. A significant number of the estimated annual informal consultations will likely involve minor bank stabilization projects. Service representatives from the Nebraska field office note that no specific mitigation is required for these projects beyond some general requirements for the stabilization materials such as no use of re-bar, or no household waste. Additionally, applicants are asked to conduct a survey of the river area 1/4 mile above and below the project site to identify any nesting sites for plovers and terns. If nests are found within this area, the project may be delayed or scheduled to avoid the nesting season.<sup>36</sup> These same standard requirements occur in the case of projects involving pipeline river crossings. In cases where active nests are found adjacent to the proposed project area, more scrutiny is given the specifics of the setting, and the applicant may be asked to schedule the stabilization work outside of the plover breeding and nesting season.

Based on conversations with Nebraska Field Office Service personnel, it is estimated that future

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<sup>35</sup> For instance, a new municipal well that replaces an older existing well might not represent a new water depletion. Additionally, pumping water from an aquifer that is hydrologically separate from the alluvial aquifer impacting the river might not represent a depletion.

<sup>36</sup> Personal communication, Wildlife Biologists, U.S. Fish and Wildlife Service, Nebraska Field Office, Grand Island, Nebraska. June 11 and 18, 2002.

informal consultations in Nebraska involving the plover will generally be distributed with one-third being potential water depletions, one-third being minor bank stabilizations, and one-third being pipeline and other assorted activities. In the case of potential water depletion consultations that are resolved at the informal level, no project modifications or mitigation actions are suggested by the Service. While Nebraska Service personnel report it to be relatively rare for project modifications (primarily the timing of projects to occur outside of breeding periods) to be requested in the other cases of informal plover consultations, in the interest of not underestimating impacts associated with plover listing and critical habitat designation, it is estimated that ten percent of informal consultations not involving water depletion issues will require modification in the form of scheduling the projects outside of breeding periods.

An additional category of informal consultations is for bridge work within plover habitat. It is estimated that one of the predicted five informal consultations per year on bridge construction and repair will require project timing delays due to plover concerns.

In estimating the average project modification or mitigation costs associated with formal consultations on the plover and its habitat in Nebraska, the following cost estimates are used:

***Levee projects.*** Low estimate is based on the estimate for sandbar habitat creation cited in the WW Ranch Consultation in ND of \$100,000. High estimate is based on the conservation-related costs cited by NHCC for a recent Lower Platte River levee consultation of \$2.3 million.

***Water Depletion.*** Low estimate is \$2,000 per consultation based on midpoint of the range of conservation payments for minor water depletion consultations in the state. High estimate is \$4,000, the high end estimate for these minor water depletion compensation fund payments.

***Well Fields.*** Both Low and High estimates are based on the Lower Platte River example, previously cited, of \$81,000 in mitigation costs.

***Informal Consultations with project delays.*** As in the critical habitat areas outside of Nebraska, an estimate of \$5,000 per case is used to quantify the costs associated with short term project delays (in the case of bridge projects, this amount is \$10,000).

<b>Exhibit A-8. Nebraska River Habitat: Estimated annual mitigation costs resulting from piping plover consultations</b>					
Type of Consultation	Number	Activities / mitigation	Number requiring mitigation	Total Section 7 Mitigation Costs	
				Low Estimate	High Estimate
Formal Consultations	1	Levee construction / Habitat creation	1	100,000	2,300,000
	10	Water Depletion / Conservation fund payment	10	20,000	40,000
	4	Municipal wells and well fields / replacement water	4	324,000	324,000
Informal Consultations	315	Potential water depletion / none	0	0	0
	315	Minor bank Stabilization / project delay	31	155,000	155,000
	315	Pipeline and other assorted projects / project delay	31	155,000	155,000
	5	Bridge construction projects	1	10,000	10,000
<b>Total Estimated Annual Mitigation Costs</b>			<b>78</b>	<b>\$764,000</b>	<b>\$2,984,000</b>

Of the estimated 15 formal and 950 informal consultations per year in Nebraska river habitat involving the plover, it is estimated that 15 formal and 63 informal consultations will have some mitigation or project modification costs associated with them. Overall, it is estimated that the annual mitigation and project modification costs associated with consultations involving the piping plover in Nebraska river habitat will range between \$764,000 and \$2,984,000.

**Missouri River System-Wide COE Formal Consultation** While a system-wide consultation on operations of the Missouri River dams and reservoirs was conducted in 2000, the impacts of any mitigation actions adopted to protect endangered species will be felt for years into the future. At the time of this analysis, the degree to which the reasonable and prudent measures suggested by the Service during the consultation will be adopted by the COE is unknown. What is clear, however, is that any modifications to the operations of dams and reservoirs on the Missouri River system have the potential to have significant economic impacts. These impacts may include, but are not limited to, impacts on value of electrical generation, impacts on downstream navigation, and impacts on recreation throughout the system. However, while altering flow regimes to protect endangered species might impose economic costs on some Missouri River users, other

users might benefit. For example, retaining more water higher in the river system might hurt downstream navigation while enhancing upstream recreational opportunities.

In August of 2001 the COE released the “Missouri River Master Water Control Manual: Revised Draft Environmental Impact Statement (DEIS).” Within this document was an analysis of the estimated total net economic development (NED) benefits associated with all of the alternative water control plans contained in the DEIS. Four of the alternatives (all calling for modified releases at Gavins Point Dam) conform, to varying degrees, to the reasonable and prudent alternative contained in the final 2000 Biological Opinion on river operations. The COE analysis considered how these alternatives would impact economic benefits associated with navigation, recreation, flood control, water supply, and hydropower. The analysis found that all four of the alternatives having some consistency (or containing some of the beneficial actions consistent) with the recommendations in the Biological Opinion would provide a net increase in total net benefits over those anticipated under the current water control plan. This estimated increase in benefits ranged from \$4 million to \$16 million per year, depending on the assumptions used and alternatives analyzed.<sup>37</sup>

#### **Estimated Total Annual Section 7 Consultation and Mitigation Costs Associated with Piping Plover Listing and Critical Habitat**

Exhibit A-9 details the calculation of estimates of total annual mitigation and consultation costs associated with the plover listing and critical habitat. Based on the information gathered and assumptions used in this Addendum analysis, it is estimated that total section 7 related costs (both consultation and project modification and mitigation) could range between roughly \$3.5 million and \$6.0 million per year over the next ten years.

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<sup>37</sup> Table 7.13-1, “Missouri River Master Water Control Manual: Revised Draft Environmental Impact Statement.” U.S. Army Corps of Engineers, Omaha, NE.

<b>Exhibit A-9. Total Section 7 Costs Associated with the Listing and Designation of Critical Habitat for the Plover by State/Habitat Type.</b>						
<b>State / Habitat Type</b>	<b>Informal Consultation Administrative Costs</b>	<b>Formal Consultation Administrative Costs</b>	<b>Project Modification and Mitigation Costs</b>		<b>Total Section 7 Costs</b>	
			<b>Low</b>	<b>High</b>	<b>Lower-bound Estimate</b>	<b>Upper-bound Estimate</b>
Minnesota (Lake of the Woods)	\$0	\$16,300	-	-	\$16,300	\$16,300
Bowdoin & C.M. Russell NWR & Missouri River	\$4,600	\$0	\$15,000	\$15,000	\$19,600	\$19,600
North Dakota and Montana Alkali Lakes	\$35,200	\$16,300	\$5,000	\$20,000	\$56,500	\$71,500
Missouri River- North Dakota	\$323,000	\$65,200	\$168,000	\$318,000	\$556,200	\$706,200
Missouri River- South Dakota	\$139,300	\$16,300	\$198,000	\$298,000	\$353,600	\$453,600
Nebraska Rivers	\$1,454,500	\$244,500	\$764,000	\$2,984,000	\$2,463,000	\$4,683,000
COE Missouri River System-wide Consultation	--	\$32,600	net benefit	net benefit	\$32,600	\$32,600
<b>TOTAL</b>	<b>\$1,956,600</b>	<b>\$391,200</b>	<b>\$1,150,000</b>	<b>\$3,635,000</b>	<b>\$3,497,800</b>	<b>\$5,982,800</b>
<p>Note: Costs may not sum due to rounding.</p> <p>The large range between the lower- and upper-bound cost estimates is attributable to the significant uncertainty associated with the types of future projects likely to require modifications and the level of per-effort project modifications that may be required.</p>						



## **Economic Impacts Associated Solely with Designation of Critical Habitat for the Piping Plover**

The cost estimates presented in Exhibit A-9 are an indication of the total annual costs that may be associated with future section 7 consultations on the plover and its designated critical habitat over the next ten years. These represent costs likely to be incurred by the Service, Federal Action agencies, and non-Federal third parties for activities having a Federal nexus, which would require consultation under section 7 of the Act. However, the listing of the plover and the resultant Federal responsibility to avoid projects that would jeopardize the continued existence of the species is likely to trigger nearly all of the impacts presented in the Exhibit A-9. Therefore, with the exception of consultation costs associated with re-initiation of the Missouri River System-wide consultation (\$32,600), all the section 7 consultations and project modification costs presented in Exhibit A-9 are likely to occur over the next ten years even if critical habitat is not designated. The economic impact associated solely with the designation of critical habitat for the plover is, therefore, estimated to be \$32,600.

## **Potential Benefits of Proposed Critical Habitat**

One commenter stated the opinion that the DEA inappropriately failed to calculate economic benefits associated with both listing and critical habitat designation for the plover, resulting in estimates biased towards economic costs to the exclusion of benefits.

There is little disagreement in the published economics literature that real social welfare benefits can result from the conservation and recovery of endangered and threatened species. Such benefits have also been ascribed to preservation of open space and biodiversity both of which are associated with species conservation. Likewise, a regional economy can benefit from the preservation of healthy populations of endangered and threatened species, and the habitat on which these species depend.

It is not feasible, however, to fully describe and accurately quantify these benefits in the specific context of this economic analysis. For example, most of the studies in the economics literature do not allow for the separation of the benefits of listing (including the Act's take provisions) from the benefits of critical habitat designation. The discussion presented in this report provides examples of potential benefits, which derive primarily from the listing of the species, based on information obtained in the course of developing the economic analysis. It is not intended to provide a complete analysis of the benefits that could result from section 7 of the Act in general or critical habitat designation in particular. In short, the Service believes that the benefits of critical habitat designation are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.

## **Potential Impacts on Small Entities (Businesses, Governments, Non-profits)**

Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions).<sup>38</sup> However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.<sup>39</sup> SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities. Accordingly, the following represents a screening level analysis of the potential effects of critical habitat designation on small entities to assist the Secretary in making this certification.

This analysis determines whether this critical habitat designation potentially affects a “substantial number” of small entities in counties supporting critical habitat areas. It also quantifies the probable number of small businesses likely to experience a “significant effect.” While SBREFA does not explicitly define either “substantial number” or “significant effect,”<sup>40</sup> the Environmental Protection Agency and other Federal agencies have interpreted these terms to represent an impact on 20 percent or more of the small entities in any industry and an effect equal or greater than three percent or more of a business’ annual revenues.<sup>41</sup> The proposed rule being examined is the designation of critical habitat for the piping plover. Therefore, the estimated impacts due solely to the designation of critical habitat for the plover are examined in the context of the SBREFA analysis.

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<sup>38</sup> Small businesses are defined by the Small Business Administration, most commonly in terms of the number of employees or annual receipts. A small organization is “any not-for-profit enterprise...which is independently owned and operated and is not dominant in its field.” A small government is the government of a city, county, town, school district, or special district with a population of less than 50,000, not including tribal governments. Regulatory Flexibility Act, 5 U.S.C. 601 et. seq.

<sup>39</sup> Thus, for a regulatory flexibility analysis to be required, impacts must exceed a threshold for “significant impact” and a threshold for a “substantial number of small entities.” See 5 U.S.C. 605 (b).

<sup>40</sup> Regulatory Flexibility Act, 5 U.S.C. 601 et. seq.

<sup>41</sup> See U.S. Environmental Protection Agency, *Revised Interim Guidance for EPA Rulewriters: Regulatory Flexibility Act as amended by the Small Business Regulatory Enforcement Fairness Act*, March 29, 1999.

**Identifying Activities That May Involve Small Entities** Exhibit A-10 presents the activities that were identified as being potentially impacted by section 7 implementation for the plover under the upper bound estimate of impacts. Of the projects that are potentially affected by section 7 implementation for the plover, a few occur exclusively on land managed by the Service, and thus do not have any third-party involvement. Small entities should not be affected by section 7 implementation for affected projects with the Fish and Wildlife Service (activities associated with NWRs).

Of the projects that are potentially affected by section 7 implementation for the plover that do not occur exclusively on Federal lands, many are expected to involve no project modifications, or very minor ones (e.g., minor delays in project timing, installing informational signs, or requiring relatively minor contributions to fish and wildlife conservation funds). Overall, less than 56 percent of formal plover consultations and only 8 percent of informal consultations are anticipated to have any third party costs associated with them beyond administrative costs. The greatest share of the costs associated with the consultation process stem from project modifications and mitigation (as opposed to the consultation itself). Indeed, costs associated with the consultation itself are relatively minor, with third party costs estimated to range from \$1,200 to \$4,100 per consultation.<sup>42</sup> Therefore, small entities are unlikely to be significantly affected by consultations that do not involve costly project modifications.

<b>Exhibit A-10. Estimated Annual Number of Future Piping Plover Section 7 Consultations within Proposed Critical Habitat, by State/Activity Type</b>				
<b>State /Activity</b>	<b>Potentially affected activities</b>	<b>Estimated Total Section 7 Consultations Requiring Mitigation Actions</b>		<b>Consultations Due Solely to Critical Habitat</b>
		<b>Informal Consultations</b>	<b>Formal Consultations</b>	
MT, ND, SD, NE – Bank Stabilization Activity/ Levees	Bank stabilization, levee construction	373	6	0
MT, ND, SD, NE -- Other River or Reservoir Projects	Construction in rivers and reservoirs (e.g., docks and boat ramps), private dredging projects, and permitting of water intakes.	561	0	0
SD, NE -- Road or Bridge Construction	Funding of road and bridge construction, removal, and maintenance.	6	0	0
MT, ND, SD, NE, MN -- Other projects	Pesticide spraying, oil & gas drilling, municipal well fields	23	7	0

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<sup>42</sup> This analysis assumes that Action agencies will bear the cost of preparing a Biological Assessment for activities affected by the sturgeon critical habitat.

NE – Minor Water Depletion	Minor water withdrawal from river or aquifer	315	10	0
<b>Total</b>		<b>1278</b>	<b>23</b>	<b>0</b>

**Description of Potentially Affected Small Entities** This section describes the types of businesses and industries most likely to be affected by section 7 implementation for the plover.

- ***River Bank Stabilization and Levee Projects.*** COE consultations on bank stabilization projects could lead to project modifications ranging from avoiding operations at certain times (primarily during nesting periods), to creation of alternative habitat areas for the plover. These modification costs are likely to be borne by the individual or business directing the stabilization project. The types of entities that could potentially be affected by these section 7 impacts are as diverse as the types of landowner activities found along the plover habitat. They include developers of residential areas, owners of marinas or recreational facilities, private landowners, and municipalities.
- ***Federal Highway Administration bridge projects.*** The FHWA consultations in SD and NB on bridge projects could lead to project modifications primarily limited to scheduling bridge work around critical nesting periods for the plover. The primarily impacted entities in these cases would likely be the state or federal agency responsible for completing the work. As no mitigation actions are expected beyond the rescheduling of work in certain cases, no private road-work contractors are anticipated to be impacted by these consultations.
- ***Other Activities.*** A wide range of other activities (both riparian and occurring within the alkali lake habitat for the plover) have the potential to be subject to costs associated with section 7 consultation on the species and its habitat. In general, only a relatively small number of consultations involving any specific activity or industry are expected to occur. As in the case of bank stabilization projects, the businesses and industries potentially impacted include individual landowners (farm or ranch operators), municipalities, oil and gas drilling companies, companies performing pipeline installation or repair, and businesses supplying and servicing irrigation pumps and equipment.

While there are a number of industries and businesses that could potentially be impacted by section 7 consultation activity involving the plover, it is estimated that these impacts will be almost entirely due to factors other than the designation of critical habitat for the species. The purpose of this analysis is to identify the impact, specifically, of the proposed rule (designation of critical habitat for the plover) on small entities. Nearly all of the estimated impacts associated with section 7 consultations involving the plover within designated critical habitat are estimated to

be attributable to co-extensive causes, such as the listing of the plover or other threatened or endangered species. Therefore it is estimated that the proposed rule (designation of critical habitat) will not have a significant effect on a substantial number of small entities.